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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2623	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/880,985	BARRETT, PETER T.	
	Examiner	Art Unit	
	Clyde H. Jones III	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/11/2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,13,18,19 and 21-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,13,18,19 and 21-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/11/2006 have been fully considered but they are not persuasive.

Regarding claim 1 and 28 the applicant argues that Bruette in view of Chidlovskii fail to teach or suggest an entire electronic program guide record is converted into a binary signature (Remarks page 13, lines 8-10).

The examiner respectfully disagrees because Bruette teaches the service provider search data that is converted (Bruette-col. 5, lines 7-9,32-34) from alphanumeric data is an entire EPG record/entry including program identifying information/entries such as call sign (fig. 2) entry, title of program entry, EPG description entry, performers in the program entry, type of program entry, keyword entry, etc. (not illustrated but suggested as n-1, n+1, etc. columns in fig. 2) (col. 3, lines 30-42; col. 5, lines 7-10). Bruette in view of Chidlovskii teach it is obvious to convert an entire EPG record/all entries into a binary signature as will be discussed below when addressing the applicant's argument against the combination of the references. The applicant's arguments are not persuasive.

Regarding the applicant's arguments that Bruette in view of Chidlovskii fail to teach that a match to the electronic program guide signature would return all of the alphanumeric text for the electronic program guide entry (Remarks-page 13, lines 10-11,28-29), the examiner also respectfully disagrees.

Bruette in view of Chidlovskii teach that the EPG entries/search data can be searched by the user (as discussed above) and that the result of search matches is the return of what is searched for, i.e., the displayed of all of the alphanumeric text for the matched/searched EPG entry (Bruette-col. 3, lines 26-27; col. 6, lines 3-10; Chidlovskii-S14, S3-fig. 6A; col. 10, lines 60-62; col. 11, lines 1-4) or the pointing back (return) of the binary signature to the unconverted alphanumeric text. The applicant's arguments are not persuasive.

The applicant further argues Bruette in view of Chidlovskii fail to teach or suggest searching all of the single binary signatures that are unique for each entire electronic program guide record (Remarks page 13, lines 27-28).

The examiner respectfully disagrees because Bruette in view of Chidlovskii teach searching all of the single binary signatures that are unique fore each entire program guide record (entry) to find the user specified, i.e., searched for entry, e.g., channel, in the database (Bruette-col. 6, lines 1-6,28-40).

Regarding claim 39, the applicant argues Bruette in view of Chidlovskii fail to teach or suggest downloading electronic program guide data that contains a plurality of program events, converting each unique alphanumeric text description to a fixed-length binary signature that is the same length for each signature and creating one unique binary signature directly from an entire alphanumeric description of an electronic program guide (Remarks page 14, lines 3-14).

The examiner respectfully disagrees because Bruette in view of Chidlovskii teach downloading the EPG data including a plurality of program events/scheduled programs

(Bruette-col. 3, lines 27-32,61-62; col. 4, lines 18-19; col. 7, lines 40-41; col. 8, lines 6-7,12-16; in which EPG data for a plurality/various programs on various/plurality of channels are downloaded to the receiver and the various scheduled programs are searched) in which the alphanumeric text descriptions (are unique as much as the applicants are) for the programs are converted (EPG description entry not illustrated but suggested as n-1, n+1, etc. columns in fig. 2- Bruette-col. 3, lines 30-38; col. 5, lines 7-10) and Bruette in view of Chidlovskii further teach converting the text descriptions to a fixed-length binary signature directly from an entire alphanumeric description (string) is a desirable and obvious variant to one skilled in the art (Chidlovskii- col. 2, lines 48-49 & col. 5, lines 4-5; fig. 2A, items 3,4,6-fig. 2B & col. 6, lines 3-7- in which alphanumeric descriptions/strings of words are converted into a single unique binary signature of a fixed-length). The applicant's arguments are not persuasive.

Finally, the applicant argues against the combination of Bruette and Chidlovskii and more specifically because the type of information searched in Chidlovskii is entirely different from what is searched in Bruette (Remarks page 14, lines 22-24) and that it would not be obvious to improve the Bruette teachings with Chidlovskii's teachings because it is unlikely to add efficiency to Bruette (Remarks page 15, lines 1-5).

The examiner respectfully disagrees because Bruette and Chidlovskii both teach data searching techniques and even thought Bruette may be searching EPG data one skilled in the art would recognize that there are different methods of searching data and the method used depends on the performance desired from the designer, e.g., a fast searching method, a method that searches based on relevancy, a literal/exact searching

method, etc. It is obvious to replace Bruette's searching technique with Chidlovskii's technique because of its more efficient hashing function and unique hash values/signatures. Furthermore, it is generally known to one skilled in the art that the efficiency of the hash function depends on the database being converted, e.g., two hashing functions that produce binary signatures can be used to convert the same set of data but depending on how the hash function works on that specific set of data one will be more efficient than the other (Bruette-col. 7, lines 31-41). Lastly, it is irrelevant to the claims if the EPG data changes periodically because the hash function used to convert a database to its corresponding and unique hash values/signatures (i.e., a hash function/table is an index of pointers between the unconverted text data and its unique signature) must change also for the hashing function to work/"point" properly. If the alphanumeric database changes so does the corresponding hash function relating the changed alphanumeric values to the binary signatures and a skilled artisan would recognize as long as the "best" hash function is used improved efficiency is to be expected.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 39 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 39 recites on lines 8-9 each program event having a unique alphanumeric text description.

The disclosure recites receiving EPG text descriptions fig. 2, 301-fig. 3 in the drawings and interactive broadcast data entries and text descriptions in par. 8, lines 3-4; par. 9, lines 4-6; par. 21 and the binary signatures of the text descriptions being unique in par. 48.

However there is no disclosure of the alphanumeric text description for each program event being unique. In other words EPGs usually have more than one program event with the same text description for example the same title description (e.g., the same TV show being shown on two different channels or the same channel at the same time or a different time), the same keywords, the same category (e.g., comedy), the same actors, etc. The examiner does not find support for each program event having a unique alphanumeric text description.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 13, 18, 19, 21, 23-25, 27-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruette (US 6,708,336 B1) in view of Chidlovskii (US 6,347,314).

Regarding claims 1, 32, and 33, Bruette teaches receiving interactive broadcast data at the management system (IRD 10 – fig. 1) the interactive broadcast data (program identifying information including search data and Table 1 – col. 5, lines 20-30 & fig. 2) having numerical signatures that each identifies an entire one of multiple electronic program guide entries for the received interactive broadcast data for each of the numerical signatures (service provider search data – fig. 1) [the service provider search data that is converted -col. 5, lines 7-9,32-34- from alphanumeric data is an entire EPG record/entry including program identifying information/entries such as call sign (fig. 2) entry, title of program entry, EPG description entry, performers in the program entry, type of program entry, keyword entry, etc. (not illustrated but suggested as n-1, n+1, etc. columns in fig. 2) (col. 3, lines 30-42; col. 5, lines 7-10)], each of the numerical signatures created prior to transmission across the video transmission medium using a first function adapted to convert alphanumeric text in each electronic program guide entry of the interactive broadcast data into any of the numerical signatures (col. 2, lines 40-42; col. 3, lines 61-col. 4, line 5; col. 4, line 50-col. 5, line 6; Bruette teaches the program identifying information is not displayed, but is the result of a "function" used to process the information identifying program channels and service provider search data, which is displayed; further more the conversion table 1 is used to

convert the desired alphanumeric search data, i.e., the user's search query data, into a format that facilitates comparison with the program identifying information which is converted prior to transmission as disclosed; col. 5, lines 40-43, 4-6; in which Bruette even further teaches that even though it is possible to store unconverted call signs in the RAM of the IRD 10 it is unpractical and unlikely) and storing the numerical signatures at the management system in RAM 22 (col. 5, lines 4-7 & 40-46; in which the first function converts service provider search data/interactive broadcast data text descriptions from alphanumeric type data into decimal integers/"numerical sequences" for comparison);

inputting from the input device (remote control –fig. 3) to the management system a user-entered text string (user inputs search criteria characters) (col. 5, 64-67);

selecting (conversion table 1) and using a second function that is adapted to convert the user-entered text string into a numerical signature that is stored at the management system, the numerical signature of the user-entered text string having the same format (decimal/integer) as the numerical signature converted by the first function for the interactive broadcast data (col. 5, lines 53-55 & table 1, col. 5; in which the second function converts the user input/characters directly to decimal integers by pressing the alpha key 28 –fig. 3 first and then the input is received by processor 18/RAM 22);

retrieving an comparing the numerical signatures of the interactive broadcast data text descriptions to the numerical signature of the user-entered text string (col. 6, lines 3-5); and

based on the comparison, the management system identifying one and only one item of interactive broadcast data that matches the input text string and returning all of the alphanumeric text for the matching electronic program guide entry [the EPG entries/search data can be searched by the user and the result of search match is the return of what is searched for, i.e., the displayed of all of the alphanumeric text for the matched/searched EPG entry -col. 3, lines 26-27; col. 6, lines 3-10- or the pointing back (return) of the signature to the unconverted alphanumeric text], otherwise the management system identifying no match (col. 6, lines 41-58; in which the system identifies (returns) only one match to the user search criteria, otherwise it selects one logical match, e.g., closest/next highest channel, etc., or it identifies no match and allows the user to identify the selected/returned match).

Bruette fails to disclose the first function converting the search data into unique binary signatures and unique binary signatures having a fixed number of bytes and further fails to disclose the second function converting the user-entered search criteria into a unique binary signature and having the same number of fixed bytes as the unique binary signature converted by the first function.

In an analogous art (the art being data retrieval via computerized conversion of records and computerized conversion of user queries to the records to facilitate fast/efficient output of matching results; col. 3, lines 12-22, col. 17, lines 45-46, col. 2,

lines 13-41; Bruette – col. 7, lines 40-53), Chidlovskii similarly teaches converting/hashing user entered alphanumeric input into a numerical value for efficient comparison with a search database (col. 6, lines 21-33; col. 5, lines 1-3; fig. 2A & 2B). Chidlovskii further teaches the first function converting the search data (region formulas/terms) into unique binary signatures (region signatures/signature files) and unique binary signatures having a fixed number of bytes (fig. 2A; col. 6, lines 1-9; in which region signatures are created from signatures representing a (unique/distinct) signature of a term; col. 5, lines 9-11) and further discloses the second function converting the user-entered search criteria (query term/conjunction of terms) into a unique binary signature (query signature/signature file) and having the same number of fixed bytes as the unique binary signature converted by the first function (fig. 2B; col. 6, lines 1-7; col. 2, lines 47-49; in which query signatures are created from signatures representing a (unique/distinct) signature of a term; col. 5, lines 9-11& col. 7, lines 25-30), for the advantage of for the advantage of simple and efficient query evaluation and comparison that enables the avoidance of most tuple (text description record) duplications (i.e., false drops/positives or regions that "match" but are incorrect) and decreases memory space requirements (col. 3, lines 24-29).

Chidlovskii converts text descriptions (regions, fig. 2A) and user-entered text (queries, fig. 2B) into binary signatures (col. 6, lines 5-7) and compares them in binary signature form (col. 6, lines 30-32), for the advantage of simple and efficient query evaluation and comparison that enables the avoidance of most tuple (text description record) duplications and decreases memory space requirements (col. 3, lines 24-29).

It would be obvious to one of ordinary skill in the art, at the time of the applicant's invention, to modify Bruette's hash function to include the limitations the first function converting the search data into unique binary signatures and unique binary signatures having a fixed number of bytes and to include the further limitation the second function converting the user-entered search criteria into a unique binary signature and having the same number of fixed bytes as the unique binary signature converted by the first function as taught by Chidlovskii, for the advantages of avoidance of most tuple (text description record) duplications and further decreasing memory space requirements (Chidlovskii - col. 3, lines 24-29).

Regarding claim 2, Bruette in view of Chidlovskii further teach the limitation: the binary signatures being converted from interactive broadcast data text descriptions using a first set of specified rules, which cause the interactive broadcast data text descriptions to differ from an original version prior to conversion into the binary signatures (col. 5, line 63 – col. 6, line 10; in which there is an inherent set of rules to perform the generation of a text description/region, e.g. query cache, into a conjunctive region formula, e.g. "query∧cache" (a different version), prior to converting the formula terms into term (binary) signatures and ultimately into a region (binary) signature; fig. 2A).

Considering claims 3 and 4, Bruette in view of Chidlovskii further teaches the limitation: converting the user-entered text string into a binary signature using a second

set of specified rules, which causes the user-entered text string to differ from an original version prior to conversion into the binary signatures, in which the first set of rules is equivalent/same to the second set of rules (col. 5, line 63 – col. 6, line 10; in which there is an inherent set of rules to perform the generation of a user-entered text string/query, e.g. query cache, into a conjunctive query formula, e.g. "query∧cache" (a different version), prior to converting the formula terms into term (binary) signatures and ultimately into a query (binary) signature; fig. 2B; in which item 3 shows the second set of rules (for queries) is the same as the first set of rules (for regions/text descriptions).

Regarding claim 13, Bruette teaches receiving and converting electronic program guide text descriptions (program guide – Bruette – col. 3, lines 29-33) and comparing a converted user-entered text string to the EPG text descriptions as discussed above and Chidlovskii teaches receiving and converting description/regions and queries/user text input strings into binary signatures (Chidlovskii – col. 5, lines 1-10 & col. 6, lines 25-31) and as discussed above. Bruette in view of Chidlovskii obviate the limitations receiving binary signatures of electronic program guide text descriptions and comparing the binary signatures of electronic program guide text descriptions to the binary signature of the user-entered text string for the same advantages as discussed above.

In regards to claim 18 and 19, Bruette in view of Chidlovskii obviate the limitations a set top box associated with a television receiving binary signatures of the

interactive broadcast data text descriptions and a set top box associated with a television receiving a user-entered text string from an input device (IRD/STB 10 fig. 1 – Bruette - col. 4, lines 50-52 & 39-41 and fig. 3; col. 5, 64-67).

Regarding claim 21 Bruette in view of Chidlovskii obviate the limitation storing the binary signatures of the interactive broadcast data text descriptions (search data) on one or more physical storage media (RAM 22/ROM 20) (Bruette -col. 5, lines 14-15, col. 4, lines 65-67).

Regarding claims 23, 24, 25, and 27, Bruette in view of Chidlovskii obviate the limitations "receiving additional text, which is associated with one or more interactive broadcast descriptions", "receiving additional text, which is associated with one or more electronic program guide text descriptions", "receiving additional text, which is associated with one or more interactive broadcast data text descriptions, if the user-entered text string is included in any of the interactive broadcast data text descriptions", "determining based on the comparison, if the user-entered text string is included in any electronic program guide text descriptions" (Bruette - col. 3, lines 25-47 & col. 6, lines 6-23; Chidlovskii – col. 7, lines 62-65).

Considering claims 28, 29, and 30, they are obvious in view of Bruette in view of Chidlovskii as analyzed in claims 1, 8 & 18, and 19, respectively and further in regards to the further limitations, "a computer-readable medium carrying computer-readable

instructions, that when executed at the processor of the management system, cause the management system to perform the following" and "wherein the computer-readable medium is one or more physical storage media" which are obviated by the teachings of Bruette in view of Chidlovskii (Bruette – processor 18, ROM 20, RAM 22 – fig. 1; col. 4, lines 44-49, and line 63 - col. 6, line 10; Chidlovskii – col. 3, lines 12-23 & col. 4, lines 15-32).

Considering claim 31, Bruette in view of Chidlovskii, teach the unique signatures for the interactive broadcast data are converted immediately before they are loaded into RAM at the management system (i.e., it is inherent for Bruette to convert the program identifying information before it is transmitted to the IRD 10 for searching, e.g., when EPG/program identifying data is updated by the service provider) such that the interactive broadcast data text descriptions are converted to unique binary signatures as they pass from EPG data to RAM (Bruette - col. 3, line 61-col. 4, line 4; Program identifying information is compiled from EPG data, col. 3, lines 29-50).

Regarding claim 34, it corresponds to the method of claim 1. Thus, it is analyzed and rejected as discussed in claim 1.

Regarding claims 35 and 36, they correspond to the method of claim 1 and the further limitations the first function is a hash function that produces a unique hash value for the unique binary signatures for the interactive broadcast data text descriptions and

the second function is a hash function that produces a unique hash value for the unique binary signatures for the user entered-text string are also taught by Bruette in view of Chidlovskii (Chidlovskii – col. 6, lines 25-31).

Regarding claim 37, it corresponds to the method of claim 1 and further Bruette in view of Chidlovskii teach the limitation the management system identifies the one and only item of interactive broadcast data that matches the user entered-text string, and wherein full text descriptions corresponding to the interactive broadcast data are displayed at the management system (Bruette - col. 3, lines 25-47 & col. 6, lines 6-23; in which Bruette discloses program identifying information such as an EPG guide including various service provider search data such as descriptions, performers, keywords, etc., ("full text descriptions", i.e., not converted text) can be displayed).

Regarding claim 38, Bruette discloses a plurality of user entered text strings are input into the management system (col. 6, lines 35-40) and that management system identifies a plurality of one and only one item of interactive broadcast data that matches each of the user entered-text strings (reads on the system identifying the match for two search strings, e.g., a movie title search and actor's name search) and Bruette also discloses the displaying of program identifying information including an EPG which includes service provider search data such as program title, list of performers (actor's names), a description, etc., (reads on displaying of full text descriptions corresponding to matching interactive broadcast data) but does not specifically disclose each of the

corresponding text descriptions are displayed simultaneously. However, Applicant's claims do not limit the displaying of each of the corresponding text descriptions to such an interpretation. Therefore, the Examiner broadly interprets Bruette's displaying of program identifying information including an EPG which includes search data such as program title and list of actors to encompass Applicant's "all of the full text descriptions corresponding to each of the matching interactive broadcast data are simultaneously displayed at the management system". Accordingly, it would have been obvious at the time of Applicant's invention to one of ordinary skill in the art to modify the suggested teaching of Bruette to encompass all of the full text descriptions corresponding to each of the matching interactive broadcast data are simultaneously displayed at the management system in order to provide more detailed search results and EPG data, thereby facilitating a more efficient search.

[Note: In the alternative, the examiner takes Official Notice that, at the time of the Applicant's invention, it was well known in the art to provide all of the full text descriptions corresponding to each of the matching interactive broadcast data are simultaneously displayed at the management system (as evidenced by Maze et al., US 6,216,264 B1 fig. 2 & 3).]

Regarding claim 39, Bruette teaches at a management system (IRD 10 – fig. 1) having a digital processor for processing one or more numerical signatures that correspond to a interactive broadcast data received across a video transmission medium (as discussed in claim 1), the interactive broadcast including alphanumeric

electronic program guide information to be displayed on a video display device, a method for efficiently searching the electronic program guide information in response to a string of text input by a user in order to identify the particular interactive broadcast data desired by the user, the method comprising:

receiving electronic program guide data for a plurality of program events (scheduled programs), each program event having a unique alphanumeric text description (col. 3, lines 27-32,61-62; col. 4, lines 18-19; col. 7, lines 40-41; col. 8, lines 6-7,12-16; in which EPG data for a plurality/various programs on various/plurality of channels are downloaded to the receiver; the alphanumeric text descriptions are unique as much as the applicants are);

converting each unique alphanumeric text description to a signature for each text description (the EPG description entries not illustrated but suggested as n-1, n+1, etc. columns in fig. 2 are converted to numerical signatures- col. 3, lines 30-38; col. 5, lines 7-10; col. 2, lines 40-42; col. 3, lines 61-col. 4, line 5; col. 4, line 50-col. 5, line 6; Bruette teaches the program identifying information is not displayed, but is the result of a "function" used to process the information identifying program channels and service provider search data, which is displayed; further more the conversion table 1 is used to convert the desired alphanumeric search data, i.e., the user's search query data, into a format that facilitates comparison with the program identifying information which is converted prior to transmission as disclosed; col. 5, lines 40-43, 4-6);

receiving a plurality of queries from a user, each query being converted from alphanumeric text (col. 2, lines 40-41) to a numerical (col. 5, 64-67; col. 5, lines 53-55 &

table 1, col. 5; converts the user input/characters directly to decimal integers by pressing the alpha key 28 –fig. 3 first and then the input is received by processor 18/RAM 22);

comparing each electronic program guide entry by comparing each electronic program guide signature with any of the signatures of the converted user queries (col. 6, lines 3-5; searching all of the single binary signatures that are unique fore each entire program guide record (entry) to find the user specified, i.e., searched for entry, e.g., channel, in the database-col. 6, lines 1-6,28-40); and

returning the entire alphanumeric text description of an electronic program guide description that has a numerical signature that at least partly matches any of the signatures of the converted user queries (the EPG entries/search data can be searched by the user and the result of search match is the return of what is searched for, i.e., the displayed of all of the alphanumeric text for the matched/searched EPG entry -col. 3, lines 26-27; col. 6, lines 3-10- or the pointing back (return) of the signature to the unconverted alphanumeric text], otherwise the management system identifying no match (col. 6, lines 41-58; in which the system identifies (returns) only one match to the user search criteria, otherwise it selects one logical match, e.g., closest/next highest channel, etc., or it identifies no match and allows the user to identify the selected/returned match).

Bruette fails to disclose converting the search data into unique binary/digital signatures and unique binary signatures having a fixed-length and further fails to

disclose the user-entered search criteria into a unique binary signature and having the same fixed-length.

In an analogous art (the art being data retrieval via computerized conversion of records and computerized conversion of user queries to the records to facilitate fast/efficient output of matching results; col. 3, lines 12-22, col. 17, lines 45-46, col. 2, lines 13-41; Bruette – col. 7, lines 40-53), Chidlovskii similarly teaches converting/hashing user entered alphanumeric input into a numerical value for efficient comparison with a search database (col. 6, lines 21-33; col. 5, lines 1-3; fig. 2A & 2B). Chidlovskii further teaches the first function converting the search data (region formulas/terms) into unique binary signatures (region signatures/signature files) and unique binary signatures having a fixed number of bytes (fig. 2A; col. 6, lines 1-9; in which region signatures are created from signatures representing a (unique/distinct) signature of a term; col. 5, lines 9-11) and further discloses the second function converting the user-entered search criteria (query term/conjunction of terms) into a unique binary signature (query signature/signature file) and having the same number of fixed bytes as the unique binary signature converted by the first function (fig. 2B; col. 6, lines 1-7; col. 2, lines 47-49; in which query signatures are created from signatures representing a (unique/distinct) signature of a term; col. 5, lines 9-11& col. 7, lines 25-30), for the advantage of for the advantage of simple and efficient query evaluation and comparison that enables the avoidance of most tuple (text description record) duplications (i.e., false drops/positives or regions that "match" but are incorrect) and decreases memory space requirements (col. 3, lines 24-29).

Chidlovskii converts text descriptions (regions, fig. 2A) and user-entered text (queries, fig. 2B) into binary signatures (col. 6, lines 5-7) and compares them in binary signature form (col. 6, lines 30-32), for the advantage of simple and efficient query evaluation and comparison that enables the avoidance of most tuple (text description record) duplications and decreases memory space requirements (col. 3, lines 24-29).

Therefore it would have been obvious to one of ordinary skill in the art, at the time of the applicant's invention, to modify Bruette's hash function to include converting the search data into unique binary/digital signatures and unique binary signatures having a fixed-length and further fails to disclose the user-entered search criteria into a unique binary signature and having the same fixed-length as taught by Chidlovskii, for the advantages of avoidance of most tuple (text description record) duplications and further decreasing memory space requirements (Chidlovskii - col. 3, lines 24-29).

6. Claims 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruette (6,708,336 B1) in view of Chidlovskii (6,347,314) and further in view of Kessels, et al. (4,598,385).

Considering claims 22 and 26 Bruette in view of Chidlovskii teach the bit-wise comparison of interactive broadcast data text description signatures to user-entered text signatures (as discussed above and in Chidlovskii – col. 6, lines 58-67 & lines 30-32).

Bruette in view of Chidlovskii fail to specifically disclose the results of a logical OR operation performed on any/each of the binary signatures of the one or more

interactive broadcast data text descriptions and the binary signature of the user-entered text string is identical.

In an analogous art, Kessels teaches a method (fig. 4 - col. 6, lines 9-11) that determines bit-wise equivalence between a byte field/reference (such as text descriptions) in RAM 140, 142 and a received byte field/data record 114 (such as a user text input/query). Kessels' system compares, via comparator 156, the bytes of the reference/the text description (cached in RAM 142) to the result of a logical OR (implemented by comparator 152) performed on the reference/the text description (which is mirrored in RAM 140) and the received data record 114/query (col. 6, lines 43-47 & col. 6, lines 25-43; in which the EXCLUSIVE-OR/XOR function inherently does a logical OR operation to perform as disclosed).

It would have been obvious by one skilled in the art at the time the invention was made, to modify the method of Bruette in view of Chidlovskii to further include the results of a logical OR operation performed on any/each of the binary signatures of the one or more interactive broadcast data text descriptions and the binary signature of the user-entered text string is identical as taught by Kessels for the advantage providing a simple, efficient and easily implemented way to determine bit-wise correspondence/relationships between signatures.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clyde H. Jones III whose telephone number is 571-272-5946. The examiner can normally be reached on 9-5:30 p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on 571-272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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